# GOVERNMENT OF INDIA
# SCIENCE AND TECHNOLOGY
# LOK SABHA

UNSTARRED QUESTION NO:3126
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CSIR 800
Mahajan Smt. Poonam

**Will the Minister of SCIENCE AND TECHNOLOGY be pleased to state:**

(a) the salient features of CSIR 800 scheme and the funds sanctioned by the Government for implementing the same during each of the last five years, year-wise;
(b) the details regarding technologies that have been developed under the aegis of CSIR 800 since its inception, year-wise and theme-wise;
(c) the number of villages in the country where CSIR 800 scheme is being implemented; and
(d) whether the scheme has been successful in terms of creating opportunities for women entrepreneurs in the rural areas including in the State of Maharashtra and if so, the details thereof?

## Answer

MINISTER OF STATE FOR SCIENCE AND TECHNOLOGY AND EARTH SCIENCES

(SHRI Y.S. CHOWDARY)

(a) The Council of Scientific and Industrial Research (CSIR) operationalized 'CSIR-800' scheme focused at bringing in desired S&T interventions for improving the quality of life of people at the base of the economic pyramid and removing drudgery. The "CSIR 800" scheme was approved in December 2014 with a budgetary outlay of Rs 46.73 crores. The year-wise sanctioned allocation is as follows:

Year 2014-15 2015-16 2016-17 Total
Amount Rs. in crores 4.77 22.48 19.48 46.73

(b) Over the years CSIR has developed technologies for CSIR 800 focus areas for: food and food processing; building and construction; water; environment and sanitation; rural roads, cultivation and processing of economic plants; farm machinery; leather; pottery etc.
(c) The technologies developed have been gainfully utilized during last few years in more than 150 villages of several states benefiting farmers/ entrepreneurs, the details are at Annexure-I.
(d) The CSIR technologies have been able to create opportunities for men and women entrepreneurs across the country (including for the state of Maharashtra), the details are at Annexure-II.

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Annexure -I
Brief details of the CSIR technologies developed and their dissemination in different states:

CSIR has developed a number of technologies on water, ranging from source finding to mapping of water resources, from quality assessment to enhancing potability of water and from recycling to waste water treatment. The technology for community scale RO desalination plants has been developed. Based on the technology, RO plants have been set up in various states (Rajasthan, Tamil Nadu, Delhi, West Bengal, Gujarat etc.). Further, technology for arsenic removal from water has been developed and benefitted common people in the state of West Bengal. Also high flux hollow fibre membrane based technology for water disinfection and purification at affordable cost has been developed and is being used at commercial level benefiting common people and villagers.

CSIR has developed KrishiShakti, a small range (11.2 hp) diesel engine tractor. The technology of the same has been transferred and manufacturing has been initiated in West Bengal. The tractor was launched in Delhi on 20th November 2014. During the launch five tractors were handed over to farmers. The KrishiShakti has enabled farmers with small land holdings for effective tilling.

A cost effective and efficient anti tarnishing lacquer has been developed for brasswares, helping the Moradabad brass cluster. The developed lacquer is very efficient to prevent tarnishing for long durations. Also, energy efficient brass melting furnace has been developed which is smoke-free coal furnace, handles more charge (brass melt), reduces gas emission and pollution by 80% and consumes 20% less coal. It is user friendly as artisans can adopt this furnace without changing their current practices and like the present furnace, this modified version can also be repaired by the artisans. The knowhow has been transferred for commercial use.

CSIR has developed an indigenous substitute of Ukraine clay in granito ceramic tiles which has reduced the Ukraine clay requirement from 20% to about 1%, reducing thus the foreign material import and associated costs. This has made major economic difference and benefitted small and medium scale enterprises in Gujarat.

A food processing unit has been set up at CSIR-Centre for High Altitude Biology (CSIR-CeHAB) in the remote tribal region of Lahaul

and Spiti. A brining unit has been designed and prototype developed for the preservation of locally and abundantly produced peas and cauliflowers. The knowhow was showcased at the District level Tribal Fair at Keylong and training organized for the benefit of progressive farmers in the area of food and food processing: making novel products from Buckwheat; and also brining of the peas which is a major crop.

CSIR has worked with the Indian Council of Agricultural Research (ICAR) for the development of highly priced rice variety, Samba Mahsuri, resistant to the serious Bacterial Blight (BB) disease. This new variety called, improved Samba Mahsuri has been released for commercial cultivation and is being very much appreciated by farmers growing rice.

A novel variety of Ashwagandha with high root yield of 15 quintal/hectare has been developed and released to farmers which would help farmers with more earnings. The Ashwagandha has useful applications in pharma applications as anti-inflammatory, anti-stroke and anti-arthritis drug adjuvant.

The leather artisans of North East India were unable to fetch desirable profits due to lack of aesthetic appeal and standardization in leather products. There was a need to transform this knowledge into wealth by increasing the value of the products without losing its real essence. CSIR carried out a comprehensive survey in the north eastern region. Based on the inputs from the survey, new ranges of products were developed. The handbags crafted and designed with the ethnic materials of the northeast with derived inspirations from Ornaments, Dresses & Artifacts adorned by tribal folks of the northeast India. The products displayed in various national/ international fairs and attracted many enquiries. This has benefited the women entrepreneurs of North Eastern region.

CSIR has set up post-harvest centres in Mizoram (Aizawl) and Arunachal Pradesh (Pashighat). These centres are focused at helping the local farmers in the region for value addition to their agricultural produce. The centres house technology for high efficiency drying and processing of ginger, cardamom, turmeric, chilies etc. The farmers are able to sell their produce at 20 − 25% higher price to the processing centres set up. The CSIR Post Harvest Technology Centres would generate direct employment to about 300 people.

CSIR has introduced and commercialized Lilium cultivation in Lahaul and Spiti region of Himachal Pradesh. The laboratory has played a catalytic role in the promotion of commercial floriculture in Himachal Pradesh. The transfer of agro-technology of Lilium in the region was realized by the flower growers through sale of cut flowers at Delhi flower market. Over 3000 farmers are engaged in floriculture in Himachal Pradesh.

Knowhow for economically valuable cultivation for the seaweed Kappaphyusalavarezii have been developed. This seaweed is being commercially cultivated by >800 SHGs in Tamil Nadu. Each member involved in seaweed cultivation is earning on an average Rs.5000/- per month for a period of 8 months in a year. The seaweed also yields bio-energy products along with co-generation of bio-fertilizer.
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CSIR has been adopting villages to promote employment generation and income augmentation. It has thus catalyzed commercial cultivation of Geranium in Uttaranchal and Lavender in Jammu & Kashmir through community participation. In these end to end missions, farmers have been trained not only for cultivation of Geranium and Lavender but also for extraction of oil, augmenting thus their income. Likewise CSIR efforts through development of niche Mentha varieties and their propagation for mass cultivation are noteworthy. The efforts have led to economic growth and have enabled India to acquire a world leadership position in Menthol mint oil production and export.

CSIR efforts for socio-economic development had led to: empowering people of the Kashmir Valley through creation of aromatic industry; development of bio-inoculants for enhancing plant productivity and its dissemination to the farmers in Uttar Pradesh in the partnership with the State Government on a very large scale and it has enhanced agriculture productivity; and development of mushroom technology, its transfer and training which has benefitted economically the rural women in North East States.

CSIR has been contributing in the area of healthcare. Some recently developed technologies/interventions benefitting the common people include: Streptokinase (a drug for cardiovascular disease); Risorine (a cost effective bioavailability enhanced anti-tuberculosis drug); Battery operated hand-held MicroPCR (towards affordable and point of care disease diagnostics for Tuberculosis, Malaria, Dengue, Chikungunya, Hepatitis B and H1N1); nonClonableID technology for medical product authentication; Diagnostic system for affordable, point of need testing to manage HIV and TB; Novel molecular diagnostics for eye diseases; and eHealth Center (eHC, a platform for the fourth paradigm of science, data-intensive discovery, while bringing affordable healthcare services to the doorstep of people).
Some of key CSIR 800 initiatives carried out at different villages/ locations in recent years, at a glance are as follows:

S. No. CSIR 800 initiatives Work Area and villages
1 . Sisal- potentials for Rural Development and General Balaghat, Chindwara, Seoni, Sehore, Hoshangabad region in Madhya Pradesh State

Sisal Resources Centers established at 12 villages of these districts for generating additional income to farmers
2. Dissemination and showcasing of CSIR rural Technologies Various locations in the country
3. Dissemination, Training and Demonstration of appropriate rural housing technologies Different locations spread all over the country including North-East and Himalayan Hills at following:
â€¢ Muzaffarpur, Bihar
â€¢ Shillong, Meghalaya
â€¢ Shimla, Himachal Pradesh
â€¢ Dehradun, Uttrakhand
â€¢ New Delhi
â€¢ Bhopal
â€¢ Ashok Sansthan, Ghazipur, UP

â€¢ Chamoli, Uttrakhand
â€¢ Midnapur WB
â€¢ NEIST, Jorhat
4. Establishment of a Rural centre to carry out epidemiological study of various hereditary disorders and to create facility for their Genetic analysis Benefittingvillages around Jaunpur namely Kalwari, Premrajpur, Ramnagar, Rithi, Bhabhauri, Tikri, Deopur, Purabaghela, Sherawa, and Dudhowli

5. Development of Electrochemical technologies for drinking water upgradation in Northeast region North east region
6. Strategic Rural Income enhancements by Medicinal & Industrial plants based technologies AP: Hyderabad, Anantpur and Kurnul districts.

Karnataka: Bhatkal Taluk of Karnataka, villages Ujjinagere, Hulihonda, Arasinagere and Tattihalli and Bangalore

Uttarakhand: Purara, Pantnagar
Uttar Pradesh: Sitapur, Barabanki and Lucknow districts
Gujrat: Gandhinagar
North east: Jorhat
Bihar and Chhattisgarh
7. Development and demonstration of technology for better recovery and utilization of fallen animal carcasses Gujrat: Kanjari, Tranja, Bardoli, Nadiad
Rajasthan:: Pipad City, Mathaniya and Balwa (Jodhpur District)
Orissa:Jeypore
Punjab: Alowal, Gurdaspur , Dhakoli
8 . Development of appropriate technology/techniques and demonstrations for improving rural tanning Gujarat, Bhinmal&Sanchor, Dist-Jhalore in Rajasthan, Kolhapur in Maharashtra, Sobhapur in U.P. and Leh in Jammu & Kashmir.
9. Development/ Demonstration of technologies for strengthening rural leather footwear sector Kolhapur region in Maharashtra
10. Development of novel leather products based on ethnic designs Manipurand Assam region.
11. Development of Post Harvest Processing Technology for Ginger, Turmeric, Chilli and its implementation for augmenting Regional economy of Mizoram Aizawl District Block Tlangnuam (within city area), Rural Blocks ( Thingsulthliah, Aibawk, Phullen, Darlawn)

12. Development of post harvest processing technology and to enhance the farmer"s economy of Arunachal Pradesh Upper Siang District (Arunachal Pradesh)Blocks: Jengging, Yingkiong, Maryang, Tuting

In the Upper Siang district, 100 % of the local population is tribal but there are some expatriates from Nepal, Bihar, Bengal and Assam who work there. Over 90% of the local population is engaged in agriculture and depends on farming for their livelihood. They practice Jhoom / shifting cultivation. They also depend on minor and major forest produce for supporting their families. The major tribes in the district are Adi, Memba, Kampha and IduMishimi
13. Specific polymeric ion exchanger based water purification domestic units for arsenic and fluoride removal Villages of 24 North Parganas and SangrampurSibatiGram Panchayat West Bengal
14. Development of cottage industries for gypsum based products Haripar, Venasar, Bhavpar and Bagasara villages of Maliya Taluka in Rajkot District, Gujarat
Humma region, Ganjam District of Orissa, Tiruchirapalli in Tamil Nadu
15. Improving the quality and yield of salt produced by the marginal salt producers across the country Haripar, Venasar, Bhavpar, Varshamedi and Bagasara villages of Maliya Taluka in Rajkot District, Gujarat. The up graded salt technology implemented in 170 marginal salt works in the region.
Kharaghoda, Degam, Kuda, Nimak Nagar, Kidi, Jogad, Mangadh, Ranmalpur, Sultanpur villages in Little Rann of Kutch (Gujarat) − 300 marginal salt works covered under training and 150 salt works covered under direct supervision.

Bherai, Port Victor &Kathivadar para of Rajula Taluka in Amareli District of Gujarat - adopted 30 marginal salt works in the above regions. One model salt farm established at Port Victor region.

Nawa, Phalodi, Kuchaman&Pachabhadra in Rajasthan - the good quality salt technology demonstrated at Nawa in Rajasthan is being extended to Phalodi, Kuchaman and Pachbhadra regions of Rajasthan. 30 salt producers given modified design and layout of solar salt works. 29 salt manufacturers implemented the latest salt manufacturing practices in Phalodi and Nawa of Rajasthan.

The high purity solar salt production with improvement in yield demonstrated at Humma in Ganjam district by establishing a model salt farm and training program / exposure visit for the salt producers of Ganjam, Surla-Sumandi, Bolong in Orissa and Contai in West Bengal.

Sahupuram village of Tuticorin District in Tamil Nadu - the good quality salt technology was demonstrated and the technical personnel were trained to adopt the latest salt manufacturing practices. Markanam village in Tamil Nadu − One of the salt works adopted as model and a model salt farm as per the latest design & layout.
16. Farming of seaweeds and their value addition as an alternative livelihood for coastal fisher folk 1. Pullivasaland Hare island--Tuticorin Block & District , Tamilnadu − 0.8 ha
2. Kulasekaranpattinam − Tiruchendur Block (Tuticorin, District), Tamilnadu − 0.25
3. T.Nagar − Mandapam Block (Ramanathapuram,District), Tamilnadu -- 10.0 ha.
4. Akkalmadam, Mandapam Block (Ramanathapuram, District), Tamilnadu - 3.0 ha.
5. Pamban - Mandapam Block (Ramanathapuram, District), Tamilnadu - 0.7 ha.
6. Ariyankundu − Rameswaram Block (Ramanathapuram, District), Tamilnadu - 3.5 ha.
7. Hamsaladivi Block (Krishna District), AP − 1.0 acre
8. Gujarat Maritime Board Port Area, Okha Block (Jamnagar District), Gujarat − 1.0 acre

9. Mandvi Block (Kutch District), Gujarat − 1 acre
17. Tea farm mechanization Bir, Baijnath, Palampur and Dharamshala area of Himachal Pradesh (HP)
18. Tea advisory services for production of quality tea Kangra and MandiDistrcitsof Himachal Pradesh
19. Design and development of mobile essential oil extraction units Kangra, Mandi and Chamba Districtof Himachal Pradesh
20. Training on virus-tested planting material production technology of apple, plum and cherry Kashmir: Shopian, Baramulla, Ganderbal and Sopore,
Himachal Pradesh: Solan, Ghurmawin,(Bilaspur), Mehatpur (Una), Gopalpur (Kangra)
21. Demonstration of Curcuma and hedychium cultivation in agro-forestry system Dalhousie, Kihar (Churah) and Bharmour forest divisions in district Chamba, and Uhl Range of forest in district Kangra of Himachal Pradesh. Total area covered 6.2 ha.
22. Utilization of locally available plant raw material for fetching high price Kangra and Mandi District of Himachal Pradesh
23. Promotion and utilization of bamboos Quality bamboo plants supplied to Arunanchal, Assam, Delhi, Haryana, Himachal Pradesh, J&K (Introduced at Srinagar, Rajauri and Jammu for the first time), Mizoram, Nagaland, Sikkim, Uttrakhand and West Bengal
24. Promoting large scale cultivation of medicinal, aromatic and other high valued crops Kangra, Chamba, Mandi of HP and Gurdaspur of Punjab
25. Transfer of cut flower and virus tested planting material production technologies Himachal Pradesh, Jammu & Kashmir, Punjab and Uttrakhand
26. Implementation of new technology and training program for rural development in sericulture at North East states of India (Assam and Manipur) Jorhat, (Assam), Imphal (Manipur)
27. Samadhan Kendra: A rural Information technology centre for benefit of rural population in West and East Godavari districts of Andhra Pradesh Four Samadhan Kendra established in Godavari district of Andhra Pradesh. Each Kendra cateredto 20 surrounding villages.

Nallajerla Samadhan Kendra villages: 1. Nallajerla, 2.Pullalapadu, 3. Jaganadhapuram, 4.Achannapalem, 5. Kouluru, 6.Pothavam, 7.Chipirigudum, 8. PandireddiGudem, 9.Marlamudi, 10. Dubacherla, 11.Ananthapalli, 12.Avupadu, 13.Singharajupalem 14.PrakashraoPalem 15.GantariGudem 16.Gopalapuram 17.Thimmanapalem 18.Nabipeta 19. Kothaguedm, 20.Krishnamma Gudem

Prattipadu Samadhan Kendra villages: 1.Kunchenapalli 2.Arugolanu 3. Kotturu 4. Jagannadhapuram 5.Madhavaram 6. Dandagarra 7.Linga Reddy Gudem 8. Amruthapuram 9.Upparagudem 10. Apparao Peta 11. Kommu Gudem 12. Neeladripuram 13. Krishtapuram 14.Khadiyadda 15. Chinna Tadepalli 16. Pedda Tadepalli 17. Ramanna Gudem 18.Venkataramana Gudem 19. Kadakatla 20.Yagarlapalli.

Pydiparru Samadhan Kendra villages: 1. Paidipuram 2.Mandapaka 3.Velpur 4. Venkatarayapuram 5. Tetali 6.Vadduru 7. Suryaraopalem 8.Godicherla 9.Duvva 10. Muddapuram 11.Palangi 12.Undrajvaram 13. Mortha 14.Dammenu 15.Nadipalli 16. Kanuru 17.Valivennu 18.Kaldhari 19. Satyawada 20.Ajjaram

Balusumudi Samadhan Kendra villages:1. Bhimavaram Rural 2.Prakash Nagar 3. Deghapuram 4.Dirsumarru 5. Yanamaduru 6. Gorlamoodi 7.Anakoderu 8.kovvada 9. Elitooru 10.Annavarm 11.Thummagoppu 12. Eelampudi 13.Balusumoodi 14.Rayalam 15. Vempadu 16.Kopalla 17.Yendagandi 18. Mytu 19.ChinaAmiram 20.Gollalakoderu
28. Rural development program including (i) Cultivation of medicinal plants & aromatic plants, (ii) Bio-pesticides & bio-fertilizers and (iii) Mosquito eradication program Jammu region, Kashmir region & Ladakh region (J&K)
29. Development & Popularization of cost effective& efficient Technologies for Sustainable Rural Development Govt. of Orissa, Govt. of Assam, Meghalaya, Chhattisgarh, Karnataka etc. installed 1,000 LPD Terafil water purification plants in large numbers. Also in Sikkim, Assam, Meghalaya, Arunachal Pradesh, Jharkhand, Chhattisgarh, West Bengal
30. Environmentally safe Natural dyes for rural handloom sectors Maharashtra region
31. Rural development programs:(i) Sustainable development and utilization of solid wastelands, adopting green technologies using schools as knowledge dissemination centres (ii) Dissemination of dry flower/ cut flower technologies and (iii) Remediation of waste lands Lucknow, Sultanpur and other nearby districts, having vast sodic wastelands
32. Control of Indoor Air Pollution in Rural Areas 15 villages from Nagpur districts
33. Production and recovery of bio-flavours from damaged cull fruits and biomass Assam and Tripura
34. Rural development through aromatic plants and mushroom and their processing in North East India i. Chumukdema, Tanphye, Nagaland
ii. Silghat, Nagoan, Assam
iii. Papumpare, Kurungkume, Sonjuli- Arunachal Pradesh
iv. Chukitong, Wokha, Nagaland
v. Kalugagon, Sibsagar, Assam
vi. Khairabari, BTC, Assam
vii. Gandhigram,Tripura
viii. Majuli, Sibsagar, Assam
ix. Senapati, Manipur
x. Borum village, Arunachal Pradesh
xi. Langhing, KarbiAnglong, Assam
xii. Nonoi, Nagoan, Assam
xiii. Belonia, Tripura
xiv. Sangrat village, Churachandpur, Manipur
xv. Nungba, Tamenglong, Manipur
xvi. 6 district of Assam- Sibsagar, Lakhimpur, Dibrugarh, Kamrup, Darrrang, Tinsukia
35. Earthquake studies in North East India with special emphasis on understanding the seismicity along Kopili lineament North East India Region
36. Development of a reverse flow natural convection driers and cottage scale processing for rural development Villages in many parts of Kerala; Total area covered is the region consisting of Kerala, Karnataka, Andhra Pradesh, Tamil Nadu and Lakshadeep

37. Use of natural occurring minerals for providing safe drinking water at domestic level in state of Jharkhand Minerals are available in the state of Jharkhand; however, knowledge generated will also be applicable to similar minerals obtained in other parts of the country or world.
38. Development of self sustaining technology enabled villages through MAPs based technological interventions Uttarakhand, Tamil Nadu, Bihar, Sikkim, West Bengal and Chhattisgarh:

A bio-village established near Bakshika Talab.

One new Self Help Group (SHG) established at Dewaraikalan comprising 14 women members.

Chandankund and Pawaiyabad already functioning comprising about 40 women members.

Hill tribal areas of Visakhapatnam and East Godavari districts of Andhra Pradesh, four clusters consisting of seventy one tribal farmers (71) formed and the associations registered as self help groups (SHG'S). Trainings provided for making agarbattis (Incense sticks) and Gulabjal (Rose water).

Training cum awareness programmes organized and more than 350 persons trained in Andhra Pradesh and Tamil Nadu. Database of the interested farmers is being prepared and efforts are being made to initiate SMS based e-agro advisory in these regions. Publications of popular magazines, farm bulletins, pamphlets, CDs, cultivation manuals etc. in Hindi and regional languages brought out.

Efforts made to establish nursery of high yielding medicinal and aromatic plants in states like Tamil Nadu and Kerala. Two point of presence (POPs) established, one at Gandhigram (Dindigul, Tamil Nadu) and another at CSIR-NIIST, Trivandrum where a nursery of 28 Medicinal and Aromatic Plants is being developed. These POPs can serve as nodes of supply of authentic planting material of high yielding varieties to farmers. The main objectives of the project were to enhance farm incomes, generating at farm rural employment and products for cottage industry involving women and unemployed youth and reaching the unreached. Apart from economic gains, the project may help in knowledge empowerment of the rural youth and women by dissemination of knowledge through personal interaction, published literature and regular magazines, audio visual media, knowledge kiosk, mobile vans and skill upgradation through training programs.

Annexure-II

As can be seen in Annexure-I, CSIR 800 program initiatives have been successful in terms of creating opportunities for men and women entrepreneurs in rural areas including the state of Maharashtra.

The CSIR 800 program initiatives carried out in recent past and some on-going projects of the 12th Five Year Plan for employment/ entrepreneurship creation especially for state of Maharashtra are as follows:

S. No. Project Title Brief Information
Projects initiatives carried out in recent past
1. Recovery of bio-flavours from damaged cut fruits and biomass Developed process for recovery of essential oils from waste citrus fruits and peel wastes suitable for rural people and technology transferred to 4 entrepreneurs
2. Control of Indoor Air Pollution in Rural Areas Developed a cook-stove prototype for rural domestic applications. The stove improves cooking conditions and helps in improving cooking efficiency
3 . Development of appropriate technology/techniques and demonstrations for improving rural tanning An improved technique for tanning demonstrated to artisans in Maharashtra
4 . Development/Demonstration of technologies for strengthening rural leather footwear sector Developed innovative material for Kolhapuri footwear in place of bag tanned leather and engineered Kolhapuri bottom preparation for enhanced productivity. Utilized discarded leather scraps from shoe industry for fabrication. The technology has resulted in additional income generation for the artisans.
5. Non-Invasive Pulse Monitoring Device for Quick Diagnostics Developed a prototype of an easy-to-use, portable embedded gadget to acquire and store the pulse. The system is directly connected to the database on centralized server.
Ongoing 12th Five Year Plan Initiatives
1. Indoor Air Pollution Control in Rural Areas Activities being pursued are:
â€¢ Passive Smoke Particle Strainer for Rural Kitchens
â€¢ Demonstration of Solar Cooker with Improved Efficiency in Rural Areas
â€¢ Impact of Clean Cooking on Household Air Quality and Respiratory Health Field Trials,
â€¢ Adoption and IEC (Information, Education, communication) activities on Improved Cook Stove for Rural Households
2. Clean Water and Sanitation in Rural Areas Activities being pursued are:
â€¢ Treatment of Pesticide Polluted Waters in Rural Areas through Integrated Phytoremediation and Bio-augmentation
â€¢ System Biomarker study on fluorosis affected individuals in a population
â€¢ Demonstration of decentralized phytosystems for treatment of domestic wastewater and its use in agriculture
â€¢ Field demonstration & User's perception study of domestic water defluoridation techniques in rural areas
â€¢ Low cost & affordable technology for improving the sanitation & hygiene in Rural Areas,
3. Scientific Management of Plant and Algal Biomass in Rural Areas Activities being pursued are:
â€¢ Design and development of In-vessel Solar Composter for rural areas,
â€¢ Development of Bamboo diversity on degraded land for sustainability in rural area through the microbe assisted green technology (MAGT),
â€¢ Demonstration of rapid composting technology in selected villages of Vidharbha, Maharashtra.

â€¢ Mass scale Spirulina protein production and food supplementation for common men at Paanchgaon, Nagpur
4. Fabrication and Deployment of CSIR-NCL's oxygen enrichment units (OEU) and UF-membrane based water purification units for Indian rural / tribal community The oxygen enrichment units and water purification units are being developed for deployment and as an alternative employment avenue for rural/ tribal community.